

REMARKS

Claims 1-4, 6-9, 11-18, and 20 remain pending. The final rejection applies new rejections of the claims.

Rejection Under 35 U.S.C. § 103(a) over Hoffman, Jr. et al. in View of Zaki and Polan et al.

Claims 1, 2, 4, 6-9, 11-17, and 20 have been rejected as unpatentable over Hoffman, Jr. et al., U.S. Patent No. 6,264,823 in view of Zaki, “Electrocleaning,” and Polan et al., U.S. Patent No. 4,568,431. Applicants respectfully traverse the rejection.

The present claims are patentable over the combined references because the combined references do not teach the claimed method in which the electrolyzing is at a current density of less than one amp per square decimeter in a non-aggressive acid or base electrolyte medium. Rather than suggest Applicants’ method, the combined references teach away from it by disclosing that a much higher current density is required.

“A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” Ricoh Co., Ltd. v. Quanta Computer Inc., 550 F.3d 1325, 1332 (Fed. Cir. 2008) (quoting In re Kahn, 441 F.3d 977, 990 (Fed. Cir. 2006)); In re ICON Health & Fitness, Inc., 496 F.3d 1374, 1382 (Fed. Cir. 2007) (“[A] reference teaches away from a combination when using it in that combination would produce an inoperative result.”); *see also* KSR International Co. v. Teleflex Inc., 550 U.S. 398, 416 (2007) (explaining that in U.S. v. Adams the Court “relied upon the corollary principle that when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious” in finding the invention patentable).

As in Ricoh and as in Adams, the cited art teaches away from Applicants' process in which a current density of less than one amp per square decimeter is used to clean a surface in a non-aggressive electrolyte medium. The Hoffman, Jr. patent teaches "the range of amps which may be supplied is preferably about 1 amp per gallon of cleaning solution to about 20 amps per gallon of cleaning solution." Col. 7, ll. 18-25. For a tank large enough to hold a car body, which may be 30,000 to 50,000 gallons, this would be enormous amperage, even given a fairly large article such as a car body. Applicants point out, though, that this teaching in the Hoffman, Jr. patent has units (amps per volume cleaning solution) inconsistent with the secondary references (amps per unit area). At most, this reference has no reliable teaching as to current for electrocleaning in a non-aggressive electrolyte medium.

The Zaki article clearly teaches that steel substrates require, for its highly alkaline steel cleaners (p. 137, ll. 9-10), 3 to 10 amps per square decimeter, depending on the type of steel. This is three time or more higher than the maximum current in Applicant's method. Because the Zaki article urges that "[v]alues below these produce light to marginal electrocleaning," and because the Zaki values are for aggressive, highly alkaline cleaners, the person skilled in the art would be firmly led away from attempting much, much lower currents with much, much less aggressive electrolyte solutions.

The Polan patent, like the Zaki article, teaches a highly alkaline electrolyte solution, col. 5, lines 2-35, and current (1 to 500 mA/cm², which I calculate (1000 mA per A, 10 cm per dm or 100 cm² per dm²) to be equivalent to 0.1 to 50 A/dm²) that encompasses the area Zaki calls marginal cleaning to well beyond, into the area Zaki warns leads to etching and surface roughness. Polan, however, is only trying to remove residual grease and oil from its metal foil, col. 4, ll. 60-61; col., 4, l. 68; col. 5, ll. 3-10. Even for removing residual grease and oil the

preferred current is 2.5 to 20 A/dm² (25 to 200 mA/cm²), col. 5, ll. 61-62, which is much higher than in Applicants' method for removing adhered metal particle matter.

Taken together, Applicants believe a fair reading would be that the combined references teach electrocleaning would be ineffectual in a non-aggressive electrolyte medium if the current density is less than about 3 A/dm². Certainly, one could not expect such conditions to separate adhered metal particle matter from a substrate, even if low current densities might be appropriate in highly caustic mediums for removing Polan's residual grease and oil. The Office Action argues "proper adjustment of a known effective variable," but in view of the teaching this variable would have been adjusted up, not down. The art teaches away from adjusting current in the way Applicants have done.

Reconsideration of the claims and withdrawal of the rejection are respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Hoffman, Jr. et al. in View
of Zaki and Polan et al. and Further in View of Lauke

Claim 3 has been rejected as unpatentable over Hoffman, Jr. et al., U.S. Patent No. 6,264,823 in view of Zaki, "Electrocleaning," and Polan et al., U.S. Patent No. 4,568,431 and further in view of Lauke, U.S. Patent No. 4,568,438. Applicants respectfully traverse the rejection.

The Lauke patent is cited as teaching an eductor. The Lauke patent does not, however, overcome the evidence of teaching away, hence nonobviousness, of the other references of the combination. Therefore, claim 3 is patentable over the cited references for the reasons given above regarding underlying claim 1.

Applicants, accordingly, respectfully request withdrawal of the rejections and reconsideration of the claims.

Rejection Under 35 U.S.C. § 103(a) over Hoffman, Jr. et al. in View
of Zaki and Polan et al. and Further in View of Ogihara et al.

Claim 18 has been rejected as unpatentable over Hoffman, Jr. et al, U.S. Patent No. 6,264,823 in view of Zaki, "Electrocleaning," and Polan et al., U.S. Patent No. 4,568,431 and further in view of Ogihara et al., U.S. Patent No. 4,03,592. Applicants respectfully traverse the rejection.

The Ogihara patent, which concerns cleaning grease and oil from a metal, col. 5, ll. 20-30 & col. 6, ll. 13-19, is cited as teaching the particular cleaning solution of this claim. The Ogihara patent does not, however, explain or overcome the remaining references' teachings away from Applicants' method. In fact, it reinforces the teaching away by stating, that a current density of 300 to 1000 ampere/m² is used, col. 6, ll. 55-56. Nor is the Ogihara patent enlightening on methods for removing adhered metal particle matter.

Applicants, accordingly, respectfully request withdrawal of the rejections and reconsideration of the claims.

Conclusion

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will

expedite prosecution of this application, the Examiner is invited to telephone the undersigned at
(248) 641-1220 (direct line).

Respectfully submitted,


Anna M. Budde
Registration No. 35,085

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Harness, Dickey & Pierce, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600